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The Public Health Officer and his Relation to Public Health in Ontario*

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GENTLEMEN—I consider it a great honour to have the privilege of addressing you, the Health Officers of this Province, and wish to thank in particular Dr. J. W. S. McCullough for his very kind invitation to address you. May I pause a moment to take this opportunity of thanking the Medical Health Officers of No. 3 Military District for their kind cooperation and assistance to me when I had occasion to be associated with them in connection with matters of public health.

I have chosen for the subject of my remarks today "The Public Health Officer and his Relation to Public Health in Ontario". I am a neutral so to speak, but have become very much interested in matters of public health, as I occupy in the army a position similar to the health officer with these exceptions. My duties were in connection with a special class, the district I covered was somewhat large, and lastly, that the community I looked after was subject to discipline.

I quite realize the immensity of the subject I have chosen, and in the time allotted to me, I shall be barely able to give you an outline of the subject.

Medical Officers of Health in the Province of Ontario are not paid adequate salaries. The Medical Officer of Health, as you know, is paid by the community in which he resides. The town council pay him whatever they see fit. While it is generally conceded that the Medical Officers of Health give many times over value for money received, still they are paid very poor salaries. He is very often the last to be considered of civic wage earners. If adequate remuneration were paid no

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doubt time would be given in proportion. The ideal to which we should look forward to would be that we should have a full time paid Medical Officer of Health.

In addition to the Health Officer, it is necessary that he should have an adequate staff, such as sanitary inspectors, public health nurses and clerks. It is true that some communities have acted along these lines, while in others, such institutions as the Royal Victorian Order of Nurses, have carried out this work. But it is evident that the best results cannot be obtained unless organization is good and control is centralized.

"Can we hope to achieve this ideal?" My answer is "Yes! By all means." "But how?" you will say. A possible solution of the difficulty might be brought about in this way. That Medical Officers of Health and their staff should be paid by the Provincial government. Is not health a provincial matter? Then why does not the province look after the enforcing of the law and the payment of the officers that do the enforcing? And I further contend unless the Medical Officer of the community is paid by the province, and that he is subject to discipline by the Provincial Officer of Health or his deputy, health laws will not be enforced.

I will now pass quickly on and take the liberty to point out some reasons to justify the statements I have just made.

For instance, towns have plumbing inspectors, who examine the sanitary fixtures of houses, but if I am informed correctly, these officials are not responsible to the Medical Officer of Health which they should. It is worthy to note in passing that every Medical Officer of Health should have a working knowledge of sanitation from the point of the engineer.

The care and collection of garbage is not being looked after as it should be. This matter requires an educational campaign.

Many cities and towns have milk inspectors. These officials, in some cases, are veterinarians, but you will recognize with me that while this official may be of assistance, still the work is one that should come under the Medical Officer of Health. You all recognize that the bacteriological count in the case of milk is of little or no value, and what counts is this, the surroundings of the source of supply, and the cleanliness of the utensils, and of those who handle the milk. Surely this work should be done by the Medical Officer of Health.

There is no proper supervision of slaughterhouses and canning factories, candy shops, bake shops, etc. Restaurants and hotels show kitchens that are extremely dirty. The public are handed out eatables from dens of filth.

Common drinking cups are allowed even in the schools, and in very many public places. Railway coaches are notorious for these water

containers being filthy. Delapidated drinking cups are always in place, and you have only to sit for a few minutes to see how often they are used.

Lavatories in railway coaches are in a filthy condition. Soap and towels for common use are there. May I ask this question. "Must a man, because he cannot afford to pay for a Pullman or Chair Car, be the object of the spread of communicable disease?" Evidently the railway companies think that he should, because they discriminate against him in different coaches on the very same train. You know, gentlemen, that the traveller cannot evade communicable disease in this manner, because the poor man's child may take the disease, and transmit it to the rich man's child under, say, such conditions as attending school. Both parties ought to be protected.

Our provincial laws are not respected in regard to water supplies. Boards of trade and mayors will tell you that they never had typhoid in their town, and admitting with the next breath, that their water supply is not satisfactory, and very often shows contamination. How ridiculous talk of this kind is, you know. Samples of water are not collected regularly because the carrying out of this feature entails considerable time and trouble, and hence is not done.

How many Medical Officers of Health here present candidly know what the Venereal Act is all about or try to enforce it in their community? You see therefore, gentlemen, that Medical Officers of Health do not take the interest that they should in matters of health in this province.

The Medical Officer of Health should be the most-thought-of individual in the community. He should be the teacher and moulder of public opinion in matters of public health. He should interest himself to stimulate organizations that would promote public health. The clean-up week, the exposing and prosecuting of unscrupulous violators of public health law. The protector of the new born child (what an important and necessary duty now in this time of reconstruction), and in fact the guardian of health in every community. The travelling public should be protected. A resident in a large city should be protected in the small community and also while he is travelling. If it came to pass that these matters were corrected, would not communicable disease disappear from our midst? The untold misery to themselves and others of young men and women who are exposed to venereal disease would be lessened. Again I say, that it is useless to have laws unless they are enforced, and the enforcing of laws can only be done by a Health Officer who is paid an adequate salary by the Provincial government, and subject to discipline of the Provincial Health Officer or his deputy.

I might have gone on to consider many other phases of this subject, and I desire that you understand that it is not with a spirit of criticism

that I bring these facts before your notice, but it is with the idea of stimulating your interest in the fact that a full time Medical Officer of Health paid by the province is necessary for every municipality of this province.

Before concluding may I mention that a step along the lines that I have suggested is already before the Dominion House at Ottawa. A Federal Department of Health is about to be established. The public seem aroused to the fact that there is such a thing as preventative medicine, and that preventative medicine is worth while, therefore why should you, the Medical Health Officers of this province not take advantage of this to improve conditions in Ontario.

To sum up this paper then I would say:—

- (1) Public health law is not being enforced in Ontario as it should be.
 - (2) The responsibility for enforcement of this law rests ultimately in the Medical Officer of Health of the municipality.
 - (3) That unless a full time Medical Officer of Health be on duty, the law cannot be properly enforced.
 - (4) In order that a proper Medical Officer of Health be on duty and adequately paid, this salary, as well as that of his staff must come from the province.
 - (5) That the Medical Officer of Health should be responsible for discipline only to Chief Officer of Health of the Province.
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President's Address

Annual Conference Medical Officers of Health of Ontario

By G. L. CRUIKSHANK, M.D.

Windsor, Ontario

I WISH to thank the members of the Conference for the honour of the Presidency and to assure them that the pleasure would be much greater if there was no address to be made or even if the subject was selected.

It is customary to review the advances that have been made in sanitation during the year, but as these have been most distinguished in the army, I feel that they should be taken up by a confrere who helped to make such a marvellous reputation for prevention of disease in the war.

The most outstanding incident in health matters during the past year was influenza, but while this has been as successfully managed in Ontario as anywhere in the world yet the death rate has been great and our efforts to prevent it were largely unavailing. Scientific investigations have been carefully made, with results so varied that they leave one's mind in a state of chaos. Great as has been the destruction of life by influenza I believe it will eventually save more lives than it has destroyed, *if we learn to cover our mouths and noses during coughing or sneezing* as was recommended by Benjamin Franklin long before bacteria were discovered.

The M.O.H. should make a careful examination of the ill-health of his community and search for underlying causes. It would be a good practice with every death under seventy years to trace its cause to its source which may have been in infancy or before that. Until lately our only data have been the death and contagious disease lists; to these we are adding the condition of health of those commencing school and during the school period and recently a very interesting study was made by the military of all youths between twenty and thirty and to our amazement it was found only fifty per cent. were fit for the fighting line. These are practically the only data we have for our diagnosis.

The M.O.H. will find that about one-third die the first ten years of life, one-third during the next fifty. After he has analysed, tabulated and thought over these deaths he certainly will be better fitted to advise his Board of Health. He will probably find that seventy-five per cent.

of children commencing school are defective and he will be compelled to think of the cause of bad teeth, infected tonsils, cervical glands, and tuberculosis.

In 1917 I analysed one thousand consecutive cases examined by a military medical board but was forbidden to publish it because it might indicate to the enemy our failing man power. No doubt the new Dominion Minister of Health will make this a careful study. Our diagnosis to be of any use must lead us to apply remedies. How can we avoid deaths among infants, ailments in school children, and among young men defects that unfit them for service in war and consequently for efficiency in civil life? How can we get rid of contagion? We can prevent smallpox with vaccination, but this will not protect against any other disease. So with typhoid and diphtheria and a few other diseases, each with its own protection, but like the Alchemists, we fail to find one universal panacea.

One hundred years ago one out of seven deaths was due to smallpox, vaccination has almost excluded this disease from civilized communities. During the Boer War more deaths occurred from typhoid than from wounds, during the recent war protective vaccine has almost eliminated this disease from modern armies; but *we have not more than a half-dozen effective vaccines or serums, yet men and women lived and flourished before these were discovered.*

The human body is the most effective medicine factory in the world, but for this the human race would have been extinct a million years ago. This factory is made up of the most intricate structures and is full of machines that produces the most wonderful products. The finest minds of the world have for centuries studied it and have established volumes of facts about it. Surely the care of this factory should be under the supervision of a superintendent who has a reasonable knowledge of its structure and workings. What ship would be entrusted to an engineer who did not thoroughly understand his engine? A novice might handle the levers and bring the ship to port if everything worked well but what would happen if a machine broke down. But the human factory is infinitely more intricate with hundreds of machines working in unison and human life is its product, yet the people of this province are complacent when quacks grossly ignorant of its mechanism undertake the supervision of this marvellous machine. The human body in spite of them maintains its ancient power over disease and often brings about a cure which these humbugs claim as due to their efforts.

The medical profession is largely responsible for this through their carelessness in not explaining; for very many forget the self-healing power of their bodies and attribute their health solely to their medicine

so that it is natural for them to believe a recovery in the hands of a quack is due to his efforts no matter how futile and ridiculous.

If there is anything that the people of this province should insist upon it is that those who undertake the supervision of human life should have a knowledge of the anatomy and physiology of health and disease. The public should do this themselves, for we have done it pretty well for them, as well as they would allow us to do, but their appreciation of our efforts recalls a story of Voltaire who was asked by his father what profession he would like to take up. Voltaire answered that he would like to be a Reformer and his father replied: "Do you know what happened to the greatest Reformer who ever lived?" *Many think our efforts to protect the public are attempts to perpetuate a monstrous medical trust.*

Primitive men isolated the contagious or disposed of them by means not so humane. Fifteen hundred years before the birth of Christ, Moses laid down rules for quarantine, disinfecting by washing and the burning of infected articles but the only immunity was inherited or accidentally acquired. They had no vaccines but they had immunity.

This self-healing power of the race is the basis of our modern immunization, a vaccine is injected which stimulates the organism to produce its protective bodies in advance so that when disease arrives it meets an effective resistance and the organism escapes. Sir Almoth Wright thinks that we are on the eve of a great development in vaccines.

But our ancestors were not without means for stimulating this inherent power of resistance to disease.

This is well illustrated by our sanatorium treatment of consumption, for which there is no specific, but confidence, rest, food, and fresh air with sunlight are accomplishing miracles and these are the very agencies that have kept the race alive, are now, and even after the vaccine age arrives will continue to be our best aids to combat disease before and after exposure. Of course no amount of these things will prevent one from getting smallpox or typhoid as does vaccination, but they help even these procedures and are effective *now*. Vaccines are very few and limited to one disease while these agencies are universal.

Faith cure is one of our best protectors. During an epidemic the terrified are the easiest victims. The most successful family physician I ever met gave good advice and good medicine; but gave more faith cure than a Christian Science healer.

During the recent epidemic capable and reliable observers published a procedure that gave wonderful results and we felt that influenza was conquered until some equally competent and reliable observers using exactly the same thing published results that appeared disastrous.

May it not be that the difference was due to enthusiasm and faith cure? I believe a well-grounded optimism will increase the opsonic index.

REST.—Doctor Richard Cabot says "I believe more minor illnesses are due to lack of sleep than to any other recognizable factor. A person catches cold, gets lumbago, is constipated, is headache-ridden—sleep would set him right with the world." Exercise in the open must always be considered with proper sleep and this it must be admitted is one of our best means of preventing disease.

FOOD.—The war has demonstrated in millions of cases the liability to disease of the under-fed. In India, always half starved, 4,000,000 died of influenza last year and in one village forty-four per cent. of the population. In this country there is little under-feeding but much over-feeding with improper diet. We do not drink enough water and our milk is often laden with tubercle.

FRESH AIR.—When we speak of Sanatoriums we think of fresh air. Fresh air is excellent but the sunlight that should go with it is more important.

SUNLIGHT.—It was not without reason that the ancient Egyptians at the very zenith of their power and culture worshipped the sun.

An open case of tuberculosis with an occasional cough reads the paper for ten minutes and the paper is covered with living deadly germs. He places the paper on the table in a good sunlight and in ten minutes every germ is dead. This reminds us that sunlight is not only a great tonic, but also an excellent disinfectant and that our movie theatres never see the light of day. Disease germs usually do not live long away from a living host but they do live and live best in the dark—our movies should be compelled to flood their auditoriums daily with sunlight.

A few years ago a factory was a great wall of brick with little peep-holes, now it is almost all glass. A workman's home should have as much sunlight as his factory. His home should be all sun-rooms or at least he should have one sun-room or out-door sleeping porch. This need not be expensive, with a French door instead of a window somewhere, the sun-room could be added easily and cheaply. No one well-to-do ever plans his home without a glass sleeping porch—why should the mechanic be without this boon?

Doctor Adami says at least 75 per cent. of the Canadians have been tubercular. This means seventy-four out of seventy-five got well without knowing they had it; the only symptom probably was a run-down feeling. What can a sanatorium have that one cannot have at home? It is not the mountain or forest air, for one of the most successful Sanatoriums in the continent is right in the heart of a great city. We can have the same doctor, the same nurse, the same food, but we cannot have the same rest in air and sun unless we have a sun-room. *Not only*

is this the best cure for consumption, it is also the best prevention and it enables us easily to isolate the open case right in the disinfecting rays. It is also the best tonic for a child delicate from any cause.

To sum up I wish to emphasize:

(1) That every M.O.H. should diagnose from all available data the health of his constituency once a year.

(2) That courage, rest, food, fresh air, and sunlight are the best aids to immunity.

(3) That every movie should be flooded daily with sunlight.

(4) That every home built with Government assistance should have a sun-room.

Work of Red Cross Organizations in Relation to the Preventive Medicine of the Future.*

SIR ARTHUR NEWSHOLME, K.C.B., M.D., F.R.C.P.

IT is difficult to give in brief space and without the detailed reports of proceedings in which I took part, a clear conception of the conclusions reached at the extremely important International Conference of Red Cross Societies which was held in Cannes during April of this year. I shall endeavour, however, to state the conception which gave rise to the conference and to give some of the conclusions reached by the experts in a number of departments of medicine on which are being based the initial steps for the organization of a new departure in Red Cross work.

It is unnecessary to refer to the vast amount of beneficent work which has been carried out by Red Cross agencies in the various belligerent countries. The record of saving of life, of alleviation of suffering, and, in other instances, of prevention of greater suffering is one calling for gratitude and congratulation. This work has been rendered possible by an unrivalled combination of trained and of relatively untrained workers. The trained workers were indispensable; but without the invaluable assistance of intelligent previously untrained voluntary workers, a vast mass of suffering would have been left unalleviated and unrelieved.

This work, in the main, has been directed toward the healing of the sick and wounded, but not entirely so; for most interesting and valuable work has been done among the civilian population of the belligerent countries in providing medical assistance, in special work for the treatment of tuberculosis, in securing medical assistance and advice for mothers and their children, and in caring for those who have been rendered homeless by ruthless war. In America also, around military camps in States in which public health administration is imperfect, an organization has been evolved, through co-operation between the Federal Public Health Service and the American Red Cross, by means of which territories about camps have been "cleaned up", the risks of malaria and other communicable diseases, including venereal diseases, have been minimized, a good milk supply has been assured, and elementary sanita-

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tion established. It is evident, therefore, that already the Red Cross, when local sanitary arrangements were imperfect or in abeyance, has taken upon itself the burden of the emergency preventive measures as well as of measures of relief. In so doing it has acted wisely. Preventive work is always more productive in results than relief work. It is also more economical. It is wiser as well as more humane to erect a parapet along the top of a dangerous cliff than to provide an ambulance at its base.

I do not, however, wish to give countenance to the notion that prevention and treatment of disease must be regarded in antithesis. The two parts are of a whole and not distinct and separate. This may be illustrated by two of the most serious diseases to which humanity is subject, tuberculosis and syphilis. Of these, tuberculosis is probably the chief producer of dependent widows and orphans, while syphilis, on the authority of Sir William Osler, must be regarded as third among the killing diseases. For the prevention of both of these diseases treatment forms an indispensable measure. Every arrangement conducing to the comfort or recovery of the tuberculosis patient diminishes the risk of massive infection in his family; and the prompt treatment of syphilis by arsenobenzol preparations is the most effective means for securing the patient's immediate disinfection as well as his progress toward cure.

And even when the elementary personal infection is absent, it can be argued with justice that the prompt and efficient medical treatment and nursing of the sick not only diminish the duration of individual disability, but prevent the impoverishment and enfeeblement of other members of the same family.

But for an increasing proportion of the total sickness of humanity, total prevention is now possible, and I need scarcely cite the almost complete disappearance of typhus in western nations in peace time, the rapid decline of enteric fever, and the improvement in regard to a large number of other diseases. The number of preventable diseases is being steadily increased, as investigation progresses, and as our knowledge of the already ascertained laws of health increases and becomes disseminated among the general population.

It was, therefore, a happy inspiration of Mr. Davison, the president of the American Red Cross, which led to his calling together the international conference of Red Cross Societies at Cannes, with a view to considering means by which the world-wide activities of Red Cross workers might be utilized for the prevention of illness as well as for the treatment of sick and wounded mankind. It is a vision of the future which, I think, will have a great influence on the welfare of mankind if, as I am confident will be the case, the conception fires the souls of the multitude of Red Cross workers and contributors in every civilized

country, and leads them to determine against demobilization of their forces and to continue their beneficent activities against the horrors of peace, which, in the aggregate, are even more serious to mankind than those of war.

The statement that the devastations produced by disease in times of peace are even greater than the loss of life from war, may be illustrated by the experience of England and Wales. In the four years, 1911-1914, immediately preceding the World War, 2,036,466 persons died in England and Wales, while, according to official figures, the total loss of men, during the four and one-fourth years of war, was 835,743, including 161,800 presumed dead. The war figures give the entire loss for the British Empire; but it cannot be far from the truth to state that war on the gigantic scale of the war from which we have just emerged has killed in Great Britain about one-third as many as have died in the civilian population in a corresponding period. I do not lose sight of the fact that a large proportion of the civilian deaths occur in ripe old age, and that 28 per cent. of the total civilian deaths occur among children under 5, while those destroyed by war are adults and the most virile of our race. But the greater part of the deaths in childhood, as well as in adult life, before old age is reached, are preventable; and in the future will be prevented, given adequate research, intelligent and unsparing application of knowledge already in our possession, and an avoidance of the public parsimony which in relation to public health constitutes the most serious form of extravagance. That is the ideal which Mr. Davison and his collaborators place before us, and it was to devise plans to this end and to enlist the continued co-operation of all Red Cross workers that the conference was called at Cannes.

The conference held a number of general meetings in which the general policy to be pursued was discussed, and then divided itself into sections dealing with the following subjects:—Preventive medicine, child welfare, tuberculosis, malaria, venereal diseases, nursing, information and statistics. These sections were not selected as covering the entire ground of preventive medicine, but as forming branches of work in which early investigation and action appeared to be most desirable.

But first of all the lines of general policy were discussed. It is evident that, although measures for the prevention of disease constitute a definite governmental function, neglect of which is treason to the communal welfare, even in the more advanced countries our governing bodies have not lived up to their potentialities. In scarcely a single sphere of its work can it be said of any government or of any local authority that what could be done to prevent disease and to avoid human suffering has been completely accomplished. To say this is merely to express the imperfections of humanity, singly, or the greater imperfections of com-

mittees and councils entrusted with the public purse and the public weal.

There is, and I think always will be, ample scope for supplementation of official work by voluntary workers, for the experimentation in new and promising work which is so difficult to initiate in official circles, and for the undertaking of necessary work by devoted volunteers when public opinion and officialdom refuse to undertake it.

This disposes of the argument that Red Cross activities in the prevention of disease merely prevent the development of official work. The true object of all voluntary workers is to stimulate official public-health work, and, when in any sphere the latter is fully developed, to welcome the disappearance or reduction of voluntary unofficial work, or seek the new means of social help which are always waiting for devoted workers to initiate.

The conference agreed that the new work of the Red Cross would naturally divide itself into two parts, an international bureau and national organizations. The duties of these and their relation to each other will be more clearly seen in the light of experience. The international bureau in the scheme proposed for the consideration of the conference, and which received general approval, would act as a great centre for collecting information on various public health subjects, and for digesting it and, subsequently, for distributing it by means of special publications, or periodical journals, or on application from those requiring specialized information. It would also act as a means of educating the general public on urgent problems affecting its welfare; and it would be utilized as a centre, organizing in less favoured communities missions which would undertake local investigations and remedial work. These surveys and activities would be intended rather as demonstration centres than as permanent organizations, the intention being to withdraw them as soon as the necessary work could be carried on by local Red Cross or other organizations.

It was suggested that the central bureau should comprise a number of branches dealing with epidemic diseases, tuberculosis, venereal diseases, child welfare, nursing and other subjects; collating and analysing information and distributing it through the medium of the National Red Cross of each country. Such a central bureau it will, I think, be agreed, will be of the greatest value to all social and public health workers, while not clashing with any existent agency.

The proposed organization of Red Cross agencies for preventive work has already received an imprimatur in the draft of the league of nations; and it would be appropriate that its headquarters should be near, if not side by side with, the future home of that league. If it receives the full development for which we hope, it will form, perhaps, a chief instrument in securing peace and continued happiness for mankind. The relation

of the central bureau to National Red Cross societies will be one of mutual co-operation. The central bureau will provide information and facilities for national work; the actual work will need to be carried out in each country nationally and in the main from funds supplied from that country.

It is not intended that the National Red Cross shall undertake, much less compete with, work already being carried out either by local authorities or by existing voluntary work. If, for instance, there is a society concerning itself with child welfare, or the prevention of tuberculosis, or of venereal diseases, the National Red Cross would naturally give assistance as it could through its voluntary workers in this special work, while leaving untouched existing arrangements. If no such societies existed the National Red Cross might advantageously assist in their formation, retiring as soon as the separate organization was working. In countries in which official and existent voluntary agencies scarcely exist, more active work of the Red Cross organization will be called for; in such countries assistance may be needed from the central international bureau.

Evidently there are many points of central and national administration requiring and now receiving fuller and more detailed information, and all that need now be said is that it appears to be certain that international and national Red Cross organizations which will concern themselves with the prevention of disease as well as with the relief of suffering will be formed, and that they will have great influence in hastening the reduction of human disease.

The second week's deliberations of the conference at Cannes were filled with meetings of committees of experts and more formal sectional meetings, at which lines of policy on certain specific subjects were formulated for the later deliberations of Red Cross societies in Geneva.

It is unnecessary to summarize in detail the scientific recommendations in various subjects. It may suffice, as indicating the wide scope of the field of work about to be surveyed, that among the more urgent problems of preventive medicine, priority was given to advocacy of combined efforts for the prevention of the major ills of mankind, of the provision of laboratory assistance in the diagnosis of disease, and of securing more accurate vital statistics and improvements in public health legislation.

In child welfare work, the importance of health visiting, of child welfare centres, of an improved midwifery service, and of continuous observation of children under school age as well as of scholars was emphasized.

In regard to tuberculosis, stress was laid on the essential points that measure against this disease. The scope of this work must embrace the

whole of the sick lifetime of the patient, and must include, when necessary, measures for obviating the results arising from the fact that the partially recovered patient commonly is unable to earn an economic wage.

In the prevention of venereal diseases a similarly wide outlook was advocated, including the necessary social and moral as well as medical measures against their spread.

In the preceding brief statement I have endeavoured to indicate the main outlines of the proposals considered by the Cannes conference. My statements are merely those of a participant in the conference; and it is evident that outside of the momentous decision to endeavour to retain the forces of Red Cross organizations and to secure their assistance in the great impending struggle against disease no final decisions have been made. The growth of the central and of each of the national organizations in the desired direction must necessarily occupy time, though I believe development will be rapid once the great ideal is visualized clearly by Red Cross workers in each country.

I have referred in an earlier part of these remarks to the imperfections of governments, central and local, in the control of disease. These imperfections indicate one of the most promising fields in which voluntary agencies like the Red Cross can assist toward greater efficiency. Both local and central authorities are elected by the people themselves and the laws and regulations for the promotion of the public health—and what is even more important, the enforcement of existing regulations—depend for their efficiency on public opinion which we can all assist in forming. The natural tendency on the part of the social enthusiast who has been disappointed in his efforts at reform is either to retire from the fight or to organize a voluntary organization having the same end in view. This last may sometimes be the best line to pursue, though in that case endeavour should be made to secure friendly relationship with, if not also the active co-operation of the local authority. But often the most hopeful plan is to fight the local elections and to secure the election on local governing bodies of men and women who will give those bodies no peace until the necessary reforms are secured.

If we are to be helpful we must be kindly and charitable in our criticism of local authorities. Nothing has made it so difficult to secure good men and women to undertake the burden of local government as the indiscriminating and uncharitable criticism aimed at those engaged in it. Criticism of members of our central and local governing bodies is not seldom deserved; but critics are too often those who will give no assistance in the work which, with insufficient knowledge, they vilify. When we hear of scandal in administration, let us have a sense of proportion, remembering grosser corruption, evidenced for instance in Pepy's Diary, and especially remembering that the best way to remove

corruption is by taking a part ourselves in the work of central or local government, or by steadily upholding those who are doing so with integrity.

The onlooker, whether it be on voluntary or on official work for the commercial good, has his duty to perform as well as the worker. It is his duty to make himself acquainted with local conditions and with local administrations, even though he takes no part in it. A chief need at the present time is an interested study by every adult of all the phases of local administration in each district; and in my view, Red Cross organizations will be rendering inestimable service to the community if they succeed in educating the public conscience to this effect. Increased local patriotism is urgently needed if the prospective fight against disease by the Red Cross societies is to succeed, and if the further triumphs of preventive medicine within our reach are to be secured. To this end enthusiasm will need to be infused into public health administration as well as into the work of voluntary agencies; and it is only by developing all the possibilities of our governing bodies as well as of voluntary societies and by securing the closest co-operation between the two that the new ideal of the Red Cross organization can be realized.

Some Opportunities for Health Service from a Volunteer's Point of View

MISS HELEN R. Y. REID, B.A.

Canadian Patriotic Fund, Montreal

THE revelations of war have speeded up the machinery of peace and in no way and to no extent more markedly than in the direction of national and international health. Not only has the awful toll from death and disability due to the war to be made good, but from disease that has been sapping the lifeblood of our nations for years.

Examinations of recruits for the army has provided the world with a startling picture of hundreds of thousands of its apparently able-bodied men unfit for service on account of some physical defects of eyes, ears, feet, etc., which might have been remedied in early childhood. Fifty per cent. of our Canadian "draftees" are reported as having had some defect. No statistics are available for the number of volunteers refused or drafted out of the Canadian army, because of physical defects. Great Britain turned down, as unfit for military service, one million men of fighting age, with whose help we might have won the war a year sooner, if they had received some slight medical attention in early youth. Examination of recruits has also shown us the human wreckage and waste due to tuberculosis and venereal disease, and has emphasized the prevalence in our midst of the mental defective. To quote from the United States records: "More than 20,000 men were discharged from the army camps because of *tuberculosis*. The number rejected by the draft boards for the disease is really 100,000. In a period of 53 weeks in 1917-18 there were 178,204 cases of venereal disease reported under treatment in the United States Army in this country, only 15 per cent. of which were contracted after enlistment". It is estimated that there are two million active cases of tuberculosis in the United States, and about 300,000 *feeble-minded* and 240,000 insane. (The Survey—New York). These data from American records are paralleled by similar ones in all the countries which have been at war, and they warn us signally of the actual imminent physical degeneration of the race).

Revelations such as these have challenged the attention of governments and individuals alike. Followed as they were by the ravages of the influenza and by the unequivocal admission in every country of unpreparedness and of inadequate machinery for handling epidemic

situations of such scope and virulence, it did not take long for public opinion to demand national action. As a result, *Ministries of Health* have been or are being established in Great Britain, Canada and the United States. Opportunities for Social Health service, professional and volunteer, in co-operation with the work of the governments, national, provincial and local, will, thereby, be increased in both number and scope.

INFANTILE MORTALITY A CHALLENGE.—Canada has lost 60,000 men in the war. She is losing more children—potential citizens—(35,000 according to "Social Welfare," Nov. 1918) annually through neglect, ignorance and indifference than she lost men annually in the war. In the 19 months the United States was at war 53,000 of their men were killed. The children's casualties at home for the same period were 473,000. In one of our big industrial centres the rate of infantile mortality stands at 177 per thousand (1918) as compared with 100 in the registration area of the United States (1916), 91 in Great Britain (1916) and 48.2 in New Zealand (1917). A soldier father from this city had ten times the chance to live facing German bullets than had his baby born in 1918.

The United States, challenged by war, found that not only were they about to lose many of the youths of their land, but that they were letting die about 300,000 babies and 15,000 mothers in child-birth annually. The alarm once sounded, action was soon taken. *Children's Year*, 1917-18, started out to save 100,000 babies, and among the many practical measures advocated and used at this time was the weighing and measuring of 6 million babies while their mothers were advised how to bring them and keep them up to proper health standards.

When Baden-Powell was asked when he thought the war would end, he replied as follows: "The answer is simple: the war will be decided in 1935. For this reason, the true victory will lie, not so much in the actual tactical gains on the battlefield to-day as in the quality of the men who have to carry on the work of the country after the war. War kills off the best of a nation's manhood; therefore, extra care must be exercised to save every child—not for its own sake or for its parent's sake, but for the sake of the nation. It has got to be saved, saved from infant mortality, then from ill-health and finally from drifting into being waste material. We have got to economize our human material. Each individual must be made (1) healthy and strong, (2) endowed with character, for becoming a valuable citizen for the state. Women and non-combatant men have here as big a national work open to them behind the scenes as the men have who are playing their part so gallantly on the stage in Flanders and elsewhere".

What has Canada been doing to save its army of children? You and I are Canada! Are we prepared to answer this question with pride, not

shame? We, too, can have our Children's Year and weigh our babies and keep their health records! *Child Welfare Exhibits* may well and profitably absorb the patriotic zeal of many Women War Workers now out of a job. Clubs and churches may well supply funds to help operate *milk stations* and *baby clinics*, with visiting nurses attached, if the town or city lags behind in the public health movement or is not sufficiently well subsidized to carry out a proper health programme. Child Welfare Organizations should grow up with each community, and through their work and that of the Health Department, frequent and regular *educational campaigns* should be carried on through the Press, platform and schools, to reach the people and the homes where our babies are born and brought up by the mothers, often in total ignorance of the first laws of health.

Thousands of mothers in town and country are dying in childbirth each year for lack of proper pre-natal care and attention at time of confinement. Those who die are few compared with those who suffer preventable illness and life-long impairment of health. The loss to the nation, the home and the motherless babies is a fearful one. The care a mother receives during pregnancy and confinement, together with her condition at the time, determine very largely the vigour of the child and its resistance to disease. Babies whose mothers die in childbirth have much less chance to live than those whose mothers come through confinement safely. In the country the dangers in connection with childbirth are even greater than in the city, for, added to possible ignorance and poverty, is the factor of remoteness from hospital and skilled medical care, and the necessity to use and accept thankfully the help of untrained women. A systematic nation-wide plan is urgently required if we are to solve the problem of adequate care for mothers before birth and at the time of confinement. Such a plan was evolved in war-burdened England. The Local Government Board in August, 1918, had its powers extended to make grants available for "Hospital treatment for children up to five years of age, lying-in-homes, home helps, the provision of food for expectant and nursing mothers and for children under five years of age, creches and day nurseries, convalescent homes, homes for children of widowed and deserted mothers and for illegitimate children, and experimental work for the health of expectant and nursing mothers and for children under five years of age". The extension of consultation centres and an increased staff of well paid and properly qualified health visitors were also strongly urged.

For the big work of public health we shall need more *nurses*. This is another opportunity for patriotic war workers to dedicate their service to preventing the destruction and deterioration of our nation in peace time through ignorance and neglect instead of through war. To our

V.A.D.s., therefore, comes this "new call to arms" from the babies! What more appealing, more attractive and more truly patriotic work! It is hoped in this time of need that many of Canada's young girls, having found how sweet and good real work is, will flock to the doors of our Hospital Training Schools and complete their course, so that they may continue their social service of preventing illness and of saving life, more fully equipped for this service than in the past. The *hospitals*, too, must do their part and swing wide their doors for an extended training service in Public Health.

SCHOOL CHILDREN.—Our babies, if they live, become our *school children* and depend for supervision and care no longer wholly on their mothers, but on the school teachers as well. They are supposed to arrive at school sufficiently fed as well as cleaned and clothed. With the uncertainty of regular wages on which depends the amount and regularity of food for the family, and with the certainty of varying capacity of motherhood, natural, as well as affected by inheritance and environment, many children are handicapped from the beginning of life, and undertake their school career with a minimum or less than a minimum health equipment. Underfed children cannot properly assimilate a.b.c.'s if they have not had the opportunity of assimilating milk and porridge. *Malnutrition* is a definite departure from health and should be recognized as much as tuberculosis. The Child Health Organization of the United States has an amazing record in less than a year's service of concrete achievement in attacking this problem. (Send for their "Rules in the Game of Health"), their "Class Room Weight Record" and the "Teachers' Service Booklet" and use them as propaganda material in your homes, clubs and schools. Medical inspection and follow-up work in the homes should supplement the careful supervision of the interested teacher.

Recreational facilities in school playgrounds and the use of the *school plant as a centre for community* activities in both town and country should be encouraged and developed with enthusiasm. Here is another great opportunity for individual or group service to furnish equipment or even to put in a trained play director who would develop the use of the school socially for adults as well as children. Chapters of the I.O.D.E. Women's Clubs and Red Cross Units, now closing up a period of war interests and activities, should find here a fruitful field for constructive and productive work.

With all these advantages a city child may later enter the industrial world with his or her health fairly well established. But here, too, the co-operation of the state, the public and the parent is necessary, if we are to procure the best kind of work with the least loss and wear and tear of the human machine. Child labour is intimately associated with

illiteracy, ill-health and poor home conditions. Unless suitable laws are established and enforced covering the factors of age, education, hours and conditions of work, the rights of childhood will inevitably be threatened and disregarded by both the handicapped or greedy parent and the rapacious and indifferent employer. Infraction of the laws should be reported, and co-operation should be given by every man, woman and child, in seeing that health regulations are enforced.

COMMUNITY HOUSEKEEPING.—*Community housekeeping* is of prime importance, since pure and abundant *water*, a clean city, pure *milk* and *food* mean a reduced death and morbidity rate. We share the responsibility, however, with a lax town government, if we do not report to the Health Department, a Welfare Agency or Council or Social Agencies, real, not imaginary, causes for discontent in connection with these things. If our water or milk is impure, our children, as well as those of the slums, may drink typhoid germs and die. If food in our shops and markets is exposed to dust and flies, and we are willing to accept it under these conditions, we must not grumble if we sicken with tuberculosis or other communicable diseases.

TUBERCULOSIS.—The appalling frequency of *tuberculosis* among the population in France which was revealed during the war is one among many contributory causes for the inspiring plan of the International Red Cross to dedicate its future services at the next Geneva Convention to the Health of the World. Tuberculosis, as well as other diseases, travels across continents and oceans in these days of a League of Nations, as in the days of darkness before 1914. Only by enlightened and applied and organized goodwill can we find the way out through the sad mazes and labyrinth of the tuberculosis situation. In 1918 Canada lost over 8,000 lives as the result of tuberculosis. One quarter of all who die between the ages of 20 and 50 are victims of the great white plague. While waiting for some action on the part of our new Health Department, you and I can assist by joining an anti-spitting league, and by helping to provide with money, interest and work for educational propaganda, for adequate nursing and hospital care, and for open-air schools and day camps for those suffering or threatened with this disease.

VENEREAL DISEASE.—Public action is of the utmost importance; not only in connection with infantile mortality and tuberculosis, but also in connection with venereal disease and the feeble-minded. Public opinion is at last justifying open and frank discussion by serious minded people of the sore question of *venereal disease*. Life has become too precious in the eyes of the state to risk its loss or the permanent impairment of its productive capacity because of a prudish reserve in discussing life's handicaps and dangers. A study of our army records awakens us to the need and importance of active preventive measures in this connection

and to the facts, that bad as this disease is or has been among our soldiers, it is still worse among the civilian population, and that a large percentage of death, sterility and insanity can be traced to this cause. Has your community awakened to this danger and to their need of education and protection in this connection? Is your province one of those fortunate and progressive ones that have in force an Act in regard to venereal disease? Are you familiar with its clauses?

IMMIGRATION AND THE FEEBLE-MINDED.—It has been urged that there will be no emigration from the war-stricken countries of Europe for several years on account of the need of workers there, and it has been argued that our country, needing more people to develop its marvellous resources, should open wide its doors and welcome all who will come in. The dangers of unrestricted and non-selective *immigration* are so obvious that it seems almost unnecessary to sound a note of warning; yet when we realize that arrogant steamship and railway companies share with greedy individuals the profits of commercialized immigration, it may be well to quote a few facts from the point of view, not of money-making, but of health, which bear on this problem. A study of the population of our gaols, insane asylums, hospitals and courts bears witness of the presence in our midst in startlingly large numbers of dangerous and defective aliens. In one province of Canada the *gaol population* in 1918 was 23% Canadian and 77% from other countries. In the same province the population in the *insane asylums* was 35.21% Canadian; 28.52% British, and 36.27% from other countries. The nationality of 269 unmarried mothers in two hospitals alone showed 25.76% Canadian and 44.23% British. From one private immigration home in England there came 25 feeble-minded girls of whom 24 had illegitimate children, 5 had venereal disease and 2 had 2 illegitimate children. Only by giving hearty support to improved immigration legislation and by educating public opinion in such matters through the National Committee for Mental Hygiene and other organizations working along these lines (National Council of Women, Y.W.C.A., etc.), can the health of the nation be safeguarded and its mental and physical basis be assured. Our peace days must be days of progress and eternal vigilance or by the Law of Competing Standards (MacKenzie King) the common or baser human metal and types may, if permitted, oust the higher types from the fields of labour and the occupations of our land. Not only should prevention of the entry of defective and diseased immigrants be assured by the government and its careful executive officers, but care should also be provided, as well as a fitting welcome, for the desirable immigrant. Opportunities for active participation in such work for the domestic immigrant will doubtless be offered locally and provincially by semi-official committees who will assist in the establishment and direction of hostels or guilds for these women as soon as immigration begins.

LIQUOR TRADE.—*Proper control of the liquor trade is a necessary plank* in any good health platform. The war has again made contribution to the social machinery of peace time by showing the absolute need of proper national control in order to maintain the efficiency and health of the soldier while on service. Sympathetic individual study of local and provincial needs and regulations should antedate national movements in peace time. It is a question in this, as well as in all other social problems, as to whether the government of the country should lead its people and assume paternal authority and by Act of Parliament decree total prohibition, or whether now that the war is over, the powers of local option should remain intact for the provinces. There is no doubt of a democratic support of temperance; there still remains a doubt as to the adoption of total prohibition. A study of European conditions under beer and wine edicts as well as a study of states and provinces under total prohibition may serve to throw light on this vexed question. Have you formed your judgment hastily on personal experience alone, or have you studied and thought about this important subject along national and international lines?

MOTHERS' PENSIONS.—*Mothers' Pensions and State Health Insurance* are already established social facts in certain countries. Canada is feeling her way wisely though slowly along these and other social lines. Since 1913, when the first Mothers' Pension Law went into effect in Illinois, 36 states of the American Union have enacted Mothers' Pension laws. The primary object of these laws is to maintain the home for the sake of society and the children. Through the death of the husband and father or his incapacitation by illness, or his desertion, the support of the family falls on the mother and children. Institutional care or neglect of home follows if the mother goes out to work, and the home life is weakened or wrecked. If the children work they are subject to all the physical and moral dangers of the labour world and are deprived of the education which is their right. Mothers' pensions are a practical way of meeting the situation, as they prevent the home from being broken up from reasons of poverty and they enable the children to go to school. Are there any widows with children in your community, who are obliged to work to keep themselves and their family, and who by so doing are obliged to forfeit the privileges and duties of motherhood—those of homemaker, counsellor, protector and friend? Already some of our provinces (Alberta, Saskatchewan and Manitoba) have mothers' pensions in operation and look forward as a result to a higher family standard along the lines of health, education and conduct.

HEALTH INSURANCE.—Ten European countries, including Great Britain, put *Compulsory Health Insurance* legislation into effect before the outbreak of the European war. The American Association for Labour

Legislation has a standard bill waiting to be put into effect. All the laws cover practically all low paid wage-earners. In the case of sickness the insured will receive medical or surgical service, medicines and nursing and a cash benefit for a minimum and maximum term. Benefits are paid for by the joint contributions of the insured employee, his employer and the state. For the poor the obstacles to recovery from illness are largely economic—insufficient food or other necessities, worry over making both ends meet, and the consequent necessity of a premature return to work while still half sick. Health Insurance gives the workman a chance for recovery. Health Insurance operates to prevent illness in the same way that Workmen's Compensation has operated to prevent accidents. Just as employers have installed safe-guards for dangerous machinery in order to reduce the cost of Workmen's Compensation, so in order to reduce the cost of Health Insurance they will supply, for instance, better sanitation, ventilation and lighting, more physiological hours of labour and fuller consideration for the special needs of employed women and children.

PERSONAL HYGIENE.—Of all types of hygiene there is none more important than individual and personal hygiene. On personal hygiene depends the death rate from the degenerative diseases, those diseases which we might call wear and tear diseases, and which are the by-products of civilization. They include cancer, arterio-sclerosis, Bright's disease, etc., which we are told are chiefly due to bad personal habits. The death rate from these degenerative diseases in the United States registration area increased 41% in 20 years. A proportionate increase may surely be noted in Canada. This is due to the fact that while Health Boards have been fighting infectious diseases, we have not been fighting the wear and tear diseases. Public hygiene and industrial and institutional hygiene can and will always be an immense part of the existing health movement, but it must rest in the end largely with the individual if he cares to live hygienically in order to live long and to live well. Too much food, too much soft food at irregular times, too little or too much clothing, late hours, stuffy houses, over fatigue, bad posture, too much and too little work and play, all these things and habits are so familiar that we treat them as part of our so-called regular life and resent the idea of change. In the February, 1919, report of the Toronto Board of Health we read: "the wasting diseases of middle life are causing one hundred per cent. more deaths now than they did thirty years ago". The Report on National Vitality of the Roosevelt Conservation Commission (1897) estimated that 42% (630,000 lives) were needlessly lost every year to the United States and that at least 15 years of life might be added to human life through their knowledge of hygiene. One-third of the estimated progress was reached in the State of Massachusetts by

1910, when the expectation of life in that state had increased $5\frac{1}{2}$ years in the period of 15 years after the report was made. Opportunities to improve our personal hygiene are open to us on every hand. The Life Extension Institute of New York will furnish on request printed rules and information to those who desire to take up this study and to those who may require strengthening of purpose in their will to live well. Canada wants and needs you to be a healthy citizen! You will like it better yourself! As Emerson expressed it: "Give me health and a day and I will make the pomp of emperors ridiculous".

QUESTIONS ON HEALTH

1. Do you know the birthrate and the death rate in your community, and if it compares favourably or unfavourably with that in other places?

2. Have you a Welfare or Health Council to supplement and stimulate the work of your local Health Department? Has such a council made a survey of health conditions from the point of view of prevention rather than cure, and have their constructive recommendations borne fruit as seen in a higher standard of community health?

3. Do you know what diseases are most prevalent in your community and what measures are taken against them?

4. Is there good medical inspection in your schools by doctors and nurses, with follow-up work when necessary in homes? What published reports have you from these inspectors? Is your Health Department sufficiently subsidized to do this work in a thorough and efficient manner?

5. Have any of the schools in your town made provision for providing lunch—free or at a nominal price—for the children?

6. Have you adequate hospital and dispensary accommodation with ample provision for free treatment?

7. What health standards are guaranteed in your gaols, insane asylums, children's homes, for the aged and other institutions; guaranteed for these dependents, delinquents and defectives, by a society that is so largely responsible, through ignorance, indifference or neglect for having these wards of the State dependent on its intelligent sympathetic care and generosity?

8. Who looks after the disposal of garbage and the cleaning of streets in your town?

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A Plan for a More Effective Federal and State Health Administration.*

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INTRODUCTION

IT is not only desirable but an essential prerequisite of social progress that inquiry shall be made from time to time concerning the present value and the further perfection of existing methods or instrumentalities ministering to human welfare and human wants. Health is so obviously of the first importance that its protection and more or less effective conservation have from time immemorial been made at least a matter of individual, if not collective, concern. Most of the so-called health legislation from the earliest times to the present day, however, has been concerned with the correction of ascertained sanitary or related imperfections, rather than with anticipatory action having for its purpose the prevention of disease and premature death. Much of what is called preventive medicine, even at the present time, is in the direction of prevention of further damage and harm rather than of a character deliberately designed to preclude the occurrence or inception of dangers which so frequently, and practically continuously, threaten the individual and collective welfare in what, for want of a better term, is comprehended as the vast field of public hygiene. The fact must not be overlooked that in its origin, every modern public health organization rests primarily upon the principle of quarantine as applied in the case of recognized infectious or contagious diseases, and the, if necessary, drastic exercise of the police powers on the part of the Government, the States, and the civil subdivisions thereof.

THE QUARANTINE BASIS OF PUBLIC HEALTH

Probably the earliest quarantine legislation in this country was adopted by the General Court of Massachusetts in 1647 or 1648, to prevent the introduction of the plague (probably yellow fever) "which was then devastating the West Indies". Unquestionably, and in a large measure, effective quarantine regulations, whether maritime or local, constitute, however, but a fraction of modern health legislation, which has gradually been extended from communities to persons and which now comprehends every conceivable sphere or function of individual

*A consolidation of papers read before the Commonwealth Club of San Francisco, October, 1918 and the American Public Health Association, December, 1918.

and social life. Even an enumeration of the subject-matter of modern public health activities would unduly enlarge upon the present discussion, which is chiefly concerned with future possibilities rather than with past achievements. What is to-day understood as health conservation concerns largely such anticipatory action as by general consent seems feasible of enforcement, if not in the form of specific statutory requirement, at least in the nature of improved personal conduct in matters concerning both personal and public hygiene. In the broadest sense, therefore, modern health activities have become largely educational, with a view of securing on the part of each and all concerned a better understanding of the principles which govern in the attainment of better health and greater freedom from disease, a more perfect adaptation of the human organism to its environment and a substantial prolongation of life. The acceptance of this principle has enormously increased the sphere and the function of public health administration and made perfectly obvious the inadequacy of existing methods, whether Federal, State or municipal, to effectively serve the true interests of all the people. What in former years, when the nature of epidemic diseases was not understood, was a necessary exercise of the police powers has in modern times become of rather secondary importance. All that is generally comprehended under so-called sanitary legislation, such as the burial of the dead, the control of nuisances, the protection of water supplies, sewage drainage, etc., is no longer within the realm of debatable public consideration, but is accepted as a paramount necessity of and the rightful prerequisite to a wholesome community life. Even though the principle has not as yet been generally accepted that failure in these matters on the part of the responsible authorities should constitute an indictable offense, it is nevertheless a safe conclusion that such a view is gaining ground, and a number of court decisions seem to settle the question that every community is in duty bound to furnish pure water, to abate dangerous nuisances, to prevent the further spread of communicable diseases, etc.* But practically all that concerns the health of the individual and his or her own physical well-being, is still considered primarily and essentially a matter of personal concern only.

*The early history of quarantine as a basis for a public health organization is unquestionably of much practical interest, even at the present time. One of the most instructive papers on the subject is a discourse by Richard Mead, M.D., "Concerning Pestilential Contagion, and the Methods to be Used to Prevent It," an eighth edition of which was published, London, 1722. Referring to the dangers of disease spread by means of infection through the medium of commercial intercourse, Mead took occasion to point out that "By the preceding cause [goods from infected places] the plague may be spread, from person to person, from house to house, or perhaps from town to town;

THE STATE IN RELATION TO INDIVIDUAL AND PHYSICAL
WELL-BEING

It is of the utmost importance that this distinction should be kept clearly in mind in all discussions of a broader national and state health policy. It may then be said that instead of the individual of to-day being concerned chiefly in the efficient performance of an important but limited state function regarding himself or his family, the modern conception is rather the reverse in that the government or the state is profoundly more interested in the most successful adaptation of each and every individual to his or her environment, be that what it may. Once that this as yet but very imperfectly conceived principle is generally approved, the urgency of a complete remodelling of our Federal and State health organizations becomes self-evident. In answer to the argument that such a change would be revolutionary and opposed to traditional conceptions of the freedom of the person, the reply is that quite to the contrary, a much lesser degree of public and private interference will become necessary, once that the required co-operation of *all* the people in the furtherance of collective health measures is secured. As has been well said by one of the very foremost American authorities on the theory of the state and in defense of decidedly higher conceptions

but this carries it into the remotest regions. From hence the trading parts of Europe have their principal apprehensions, and universally have recourse to quarantines for their security."

In 1834 there was published in Boston an essay on "Quarantine and Other Sanitary Systems," by Chas. Caldwell, M.D., in which the question was raised as to whether the restrictions imposed upon vessels entering the port of Boston, "called Quarantine Laws," are really useful, and if so, in what cases they should be applied. The author frankly concedes that he is no friend of quarantine laws, probably in a large measure because of the irrational and arbitrary manner in which quarantine regulations were enforced at that time, to the serious detriment of commerce and foreign intercourse. According to Caldwell, the practice of quarantine, though of ancient date, had its practical origin, at least in the modern sense, in a papal decree issued at the time of the Council of Trent by Pope Paul III (A.D. 1545). The author's forecast, that quarantine "in time to come will be known only as a matter of history and will be quoted by posterity as evidence of the error and superstition which had once held dominion over the minds of their forefathers," has not materialized during the many intervening years. Quarantine systems, however, have been substantially modified, and since 1850 the subject has been considered at eleven international conferences, the latest of which was held in Paris in 1903, and a plan was ratified in 1907 and is now in active operation in twenty-three countries, including the United States.

In a special report to the Parliament of the Commonwealth of Australia by Dr. W. Perrin Norris, issued in 1912, on "Quarantine Requirements," based upon an international survey, the statement is made that "The quarantine organization for the prevention of the introduction into the United States and its dependencies of disease from overseas and its spread from State to State must, in my opinion, be admitted to be the best conceived and most complete in the world. It exemplifies the most logical applications of the principles of quarantine."

of human society, properly conceived as an incorporated association, inclusive of all the persons composing it:

"It has been found out by experience that *the whole*, by its superior organization, can do some things to which individuals are unequal"; and furthermore, "Will it be said that by such state action individuals are not alike benefited, and so there is a sort of injustice in it? The ready answer is that this is unavoidable, and that no one of these modes of action ought to pertain to society and the state which on the whole does not contribute to the common good. When courts are instituted for the redress of wrongs, multitudes go through the world who may never have been wronged, and yet were there no courts they might have been wronged daily. Public roads are of no direct good to those who never travel. Great breakwaters and a system of lighthouses help shippers only, in the first instance, and men complain of taxes for such constructions, forgetting that, apart from humanity aiming at the safety of sailors, the prices of imports would be affected by the greater risks of vessels."*

Substitute in these illustrations the health of the community as represented by the wide range in the physical well-being of the vast multitude which compose it, any one or all of which are affected to a varying degree by the measures adopted as likely to benefit or improve it, and the parallel is reasonably exact. In other words, the health of the individual, his physical well-being, his strength of disease resistance, his immunity to infectious or contagious diseases, his successful adaptation to ever-changing environmental conditions, etc., should be made the primary concern of the future state, instead of being a matter of mere incidental consideration, as is practically the case at the present time.

NEW PRINCIPLES OF HEALTH ADMINISTRATION

Under such a conception the modern health department would assume the functions of a general health *administration* concerned with *all* the matters which affect the health and physical welfare of the people, and not merely a function sustained almost exclusively by the police powers of the Federal Government or the State and limited in its actual effective operation to a comparatively small, however supremely important, group of activities. No plan as yet proposed by any one concerned with these matters rests upon such a new principle, or set of principles, but, one and all, the proposals for changes or reforms are merely a modification of a thoroughly restricted theory of health

*"Political Science or The State" by Theodore D. Woolsey, New York City, 1877, vol. 1, p. 215.

control, conditioned chiefly by the principle of public quarantine and the control of the person under the police powers when found to be afflicted with some contagious or infectious disease and the control of the environment in matters of obvious public nuisances menacing the health of the people in more or less clearly perceived directions.

Considering that all organized Federal and State health activities are of comparatively recent date, that the earlier boards of health were chiefly concerned with the temporary control of great epidemics, that even so advanced a State as Massachusetts has had a State board of health only since 1869, reorganized in 1886, and that our present Federal public health service dates only from 1902, when broader health activities were granted in the act excluding immigrants affected with loathsome or dangerous contagious disease, and subjecting such immigrants to medical examination, the progress which has been made is profoundly gratifying, however regrettable it may be that a more thoroughly worked out system, resting upon *new principles* of personal and public hygiene, should not long since have come into existence. Yet it has been properly pointed out with reference to the first State board of health of Massachusetts that the same was commanded to take "cognizance of the interests of health and life", and that it was only made a secondary function of the board to study the cases of disease and death. As stated by Prof. Whipple, in his work on "State Sanitation," "The order in which these subjects are named is not without significance. Health is a great issue, and health is something more than the absence of disease. Health demands not only freedom from disease but a clean environment, comfortable and enjoyable conditions of life, suitable food, satisfactory provisions for work and play and for the raising of children", but health is infinitely more than this. Prof. Whipple himself was under the influence of the earlier conception that the functions of a State department of health are primarily concerned, as of course at the time they had to be, with the control of the environment in its relation to the present. The view, however, to be emphasized, and as far as practicable to be supported by the required evidence, maintains that the primary duty of the modern state is to concern itself with the welfare of the person and the successful adaptation of each to his environment, be that what it may; for the wide variations in environmental conditions make absolute uniformity in law and legislation and in rules and regulations on the basis of so-called "standards" frequently undesirable. It has been said in this connection, though, of course, subject to qualification, that, as regards the health of the individual, "The question of muscular strength, of girth of chest, of size, has naught to do with health, the sole test being the adaptability of the body to continue under the circumstances of life in which it is placed—*i.e.*, under its

environment". Just because it is so easy and convenient to live by a good rule rather than by trained intelligence, in the light of a thorough understanding of bodily functions, their limitations, their possible impairment, exceptional strength or weakness in individual cases, existence by a hard and fast rule is as likely to prove disastrous as, conversely, it is by disregard of common sense requirements applicable to one and all. For, as further said by Dr. A. E. Bridger, in his treatise on "Man and His Maladies or the Way to Heal":

"It follows as a necessary corollary that there can be no general arbitrary standards such as our one-idea men are so fond of assuming, no one perfect diet, no one perfect mode of life, no one fixed amount of ozone in the air, which would, had man but the grace to follow their wise counsels, regenerate mankind, and make all men healthy, wealthy and wise; and that no fixed one combination of these would, or could, ever suffice to that end; and this simply because, as no two men coincide precisely in construction and in the amount, variety, and distribution of forces within the body, no one set of conditions can possibly be adaptable to the whole mass of humanity."

PHYSICAL ANTHROPOLOGY AND HEALTH PROGRESS

There is a profound truth contained in the foregoing sentence which has, broadly speaking, been ignored in most of the educational efforts carried on during recent years in public health activities, in which, in theory, an average man or an average human type is assumed, although, as a matter of fact, such a concept is merely statistical or philosophical, but never real. *Man* defies analysis and subjection to the rigid principles deduced from a study of collective phenomena. After all, every man or woman is, first and last, an individual, and though by means of statistical methods certain average types are clearly to be differentiated from other average types, yet nevertheless there is nearly always a major portion of similarity, at the one extreme, and a major portion of pronounced variability, at the other. In the words of Prof. Alfred C. Haddon, in the introduction to his admirable treatise on "The Study of Man":

"It seems strange that man should study everything in heaven and earth and largely neglect the study of himself, yet this is what has virtually happened. Anthropology, the study of man, is the youngest of the sciences, but who will say that it is the least important? We may, perhaps, find one reason for this neglect in the peculiar complexity of the subject and the difficulty there is in approaching it from a dispassionate point of view; there are so many preconceived opinions which have to be removed, and this is always a thankless task. Even now the scope and significance of anthropology have scarcely been recognized."

The health service of the future, I am fully convinced, will rest more upon the teachings and the practical conclusions of anthropology, and particularly physical anthropology, as chiefly concerned with the ascertainment of the normal human physique, normal physical standards of bodily proportions and growth, and observed departures therefrom, especially during the early years of life. In brief, I believe that a rational health administration, concerned primarily with the health of the individual, must have its beginnings in a thoroughly well-worked-out department of physical anthropology, devoted to the eminently practical task of supervising the growth and development of the nation's childhood, continued through the period of early and late adolescence, inclusive of the entrance into industry or whatsoever vocations or pursuits or activities may be followed prior to the attainment of complete maturity.*

In 1904 a classical report was made by an exceedingly able departmental committee appointed by the British Government to inquire into the subject of physical deterioration. The recommendations made by that committee, however, were contemptuously disregarded! Had they been followed, there would be less anxiety to-day concerning the future physical well-being of the people of the United Kingdom. The conclusions advanced by that committee are applicable to every civilized and more or less industrially developed country. Among the principal recommendations of the committee were (1) the suggestion for an anthropometric survey, which should have for its object the periodic taking of measurements of children and young persons in schools and factories, (2) a register of sickness not confined to infectious diseases, and (3) an advisory council "representing the Department of State, within whose province questions touching the physical well-being of the people fall, with the addition of members nominated by the medical corporations and others whose duty it would be not only to receive and apply the information derived from the anthropometric survey, and the register of sickness, but also to advise the Government on all legislative and administrative points concerning public health in respect of which state interference might be expedient".

As a result of the war the subject of anthropology and national health is, however, receiving much more qualified consideration in England at present than at any time in the past, according to an article in the London *Lancet* of October 19th, 1918:

*Some exceptionally valuable data on physical growth and development are included in the first three chapters of Prof. G. Stanley Hall's treatise on "Adolescence," New York, 1905.

"The first of a series of lectures on public health problems under war and after war conditions was delivered at the Royal Institute of Public Health on October 9th, 1918, by Prof. Arthur Keith, F.R.S., his subject being Anthropometry and National Health. The chair was occupied by Major Leonard Darwin. Prof. Keith said he did not believe the Prime Minister had done any greater service than when he drew attention in his speech at Manchester, on September 12th, to the fact that if the health of the people had been looked after we should have been able to put into the fighting ranks at least a million more men, and the war would by that date have ended triumphantly. The first movement in this country to ascertain the physical condition of the people was made by a committee of the British Association in 1875, which in ten years took measurements of 80,000 men, women, and children. After the Boer war General Maurice (Sir Frederick Maurice's father) stated, in an article in the *Contemporary Review*, that out of every five men who presented themselves for acceptance as soldiers only two were found fit to bear arms. A surgeon-general of the time, after investigating the recruiting statistics for ten years, said they showed that of every 1,000 men who applied to become soldiers 400 had to be rejected. On the initiative of General Maurice the government appointed a departmental committee, which, after an eight months' inquiry, made a valuable report which recommended the setting up of machinery for investigation, but the report had been pigeon-holed. Conscription, however, had now placed us in possession of the figures in regard to the physical condition of the people. A population which deserved the term 'healthy' ought to yield the following per 1,000 men: 700 Grade I., 200 Grade II., 75 Grade III. (for sedentary work), and only 25 physically incapable. Yet a Midland manufacturing town produced only 200 Grade I, 250 Grade II, 450 Grade III, 100 Grade IV. And that was characteristic of many towns in the Midland and Northern counties of England and in the south of Scotland. Mr. Lloyd George's statement was found to be well within the mark. That was also true of the Premier's remark that the chief cause of the deterioration was in the home. Prof. Keith said he wanted to see a physical census of the people, and even after the setting up of a Ministry of National Health he would retain the Ministry of National Service, and he would have each country subdivided into areas, so that prevailing standards and ailments could be traced and investigated".

The most convincing illustration of the practical value of systematic physical examinations is the report of the Edinburgh Charity Organization Society on the physical condition of fourteen hundred school children in the city of Edinburgh, together with some account of their homes and surroundings. According to this inquiry the standard averages of the

Anthropometric Committee of the British Association for the Advancement of Science were found materially deficient, in that it was "repeatedly noted by Dr. Chalmers and others that Scottish boys and girls are usually above the average height of their neighbours south of the border" and that, therefore, "it need not cause surprise that country children and well-nourished town children exceed the standard height in a noticeable degree". In the same report attention is directed to the lesser heights of the children of certain schools, "many of whose chances of healthy growth are apparently spoiled for life before they begin to attend school, by bad conditions of the mother's life before and after the birth of the children."

Among other important investigations suggestive of the plan to be followed in this country is the report by Dr. W. Leslie McKenzie and Capt. A. Foster on a collection of statistics as to the physical condition of children attending the public schools, of the School Board of Glasgow, in which among other important conclusions, attention is directed to the extremely suggestive fact that "If we take all the children of ages from five to eighteen we find that the average weight of the one-room boy is 52.6 lbs.; of the two-room, 56.1 lbs.; of the three-room, 60.6 lbs., and of the four-room and over, 64.3 lbs. The respective heights are 46.6 in.; 48.1 in.; 50.0 in., and 51.3 in." For the girls, the corresponding figures were as follows: Weights, 51.1 lbs.; 54.8 lbs.; 59.4 lbs., and 65.5 lbs. The heights were 46.3 in.; 47.8 in.; 49.6 in., and 51.6 in."

Another suggestive contribution to this aspect of modern public health administration is the report of the Department of Health Instruction of New South Wales on the physical condition of children attending public schools in New South Wales, with special reference to height, weight and vision. In this report it is pointed out that in the first place there "were physical defects which interfered with the progress of the child's education, and in the second place, many children suffer from physical defects which escape the notice of parents until they pass a stage at which they can be easily remedied, while in the third place, there is a necessity for bringing promptly under control those complaints which break out in epidemic form among children". In other words, priority is given to physical over medical facts and the required first ascertainment of defects or deficiencies in physical growth and development.

In an admirable treatise, which as yet has received but superficial attention on the part of the medical profession and those engaged in public health administration, on "The Disorders of Post-Natal Growth and Development", by Hastings Gilford, F.R.C.S., it is said that a study of the subject in its wider aspects "must inevitably lead to the conclusion that most of the diseases to which we are subject are diseases

of growth or of development and that by far the larger number of them do not begin until after birth". The required advance in physical education, physical training and health conservation cannot make the rapid progress desired unless the course of procedure adopted is more in conformity to the facts and conclusions advanced by Hastings Gilford and others than is at present the case. All such extremely involved problems of child life as undergrowth or overgrowth, premature development or underdevelopment of sex, the disorders of growth of the skeleton, overgrowth of the thymus gland, the spleen and the lymphatic glands, etc., require for their possible correction and intelligent control a much better understanding of the more obscure facts of growth and development than prevails at the present time, even among members of the medical profession, otherwise well-informed in the several branches of medicine as a healing art.

Directing attention here to only a single illustration, such a work as the treatise on "Lateral Curvature of the Spine and Round Shoulders", by Robt. W. Lovett, M.D., illustrates the practical difficulties of really effective measures of treatment and control, in that it is said that the therapeutic measures employed in the past "have been on the whole largely empirical and have not been sufficiently correlated to its pathology and to the mechanism by which it is caused". The importance of research work in this unfortunately much neglected field was clearly brought to the attention of the public in 1916 during the nation-wide epidemic of infantile paralysis.*

*In consequence of the epidemic the subject of infantile paralysis, however, received a large amount of scientific consideration, and among the reports which have thus far been forthcoming the following are deserving of special mention: Transactions of a Special Conference of State and Territorial Health Officers with the U. S. Public Health Service for the Consideration of the Prevention of the Spread of Poliomyelitis, Bulletin 83, U. S. Public Health Service, Washington, 1917; Report on the Epidemic of Poliomyelitis in New York, 1916, published under the direction of the Department of Health of New York City, 1917; Epidemiologic Studies of Poliomyelitis in New York City and Northeastern United States During the Year 1916, by Lavinder, Freeman and Frost, Bulletin 91, U. S. Public Health Service, 1918. An exceptionally interesting report from the local viewpoint is a monograph entitled "A Municipal Sanitary Crisis, or How New Rochelle Met the Poliomyelitis Epidemic of 1916." From the international point of view a report by Dr. R. Bruce Low appended to the annual report of the Medical Officer of the Local Government Board for 1915-16, London, 1917, is of special value on account of the wide range of data considered.

To be continued.

A Preliminary Study in the Bacteriology of Jellied Meat Products.*

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JELLIED meats have given the authorities responsible for food control more concern than any other meat product. A number of cases of so-called ptomain poisoning have been attributed to the ingestion of spoiled jellied meat. From the 26th to the 29th of March, 1917, thirty-four cases of suspected meat poisoning after eating jellied tongue prepared in one establishment, and in two instances the meat was purchased from the same retail store. There was a striking similarity in the history and symptoms observed in each case. The following may be taken as a typical example: Within six hours after eating jellied tongue, the principal, five teachers, and fourteen pupils of a boarding school developed acute abdominal pains, and vomiting. There was no evidence of other gastro-intestinal disturbance. Although some of those affected were dangerously ill, there were no fatalities. The members of the households in which the cases occurred who had eaten ham or other meat instead of jellied tongue did not become ill. No systematic bacteriological examination of the suspected meat was made at this time; but it seems probable in view of the history of the cases that the meat was responsible for the outbreak.

The preparation and handling of jellied meats is also an economic problem. The loss from spoilage is estimated to be about four per cent. of the total output, and this waste in a food product which cost the consumer fifty or sixty cents a pound is of some economic importance. Under the present method of packing, the product must be marketed soon after it is packed, since nearly all jellied meats will show signs of decomposition when kept in a cooler or household refrigerator for longer than ten days. This work was primarily an attempt to find a remedy for this undue waste by a study of the sources of contamination; but it follows that any method of handling that would eliminate this loss would also give the consumer a safer product.

Preparation of Jellied Meats.—Gelatine is used in jellied meats to fill in the spaces between the pieces of meat and to give the product a good appearance. It is also used in certain kinds of canned goods to assist in

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jellying. Formerly commercial gelatine, which is manufactured from scraps of hides, horns, and waste material from abattoirs and butcher's stores, was used in the preparation of these foods. Some of this material was often decayed before being assembled for processing; but the action of the lime solution with which this material is treated in the course of its manufacture largely removes the poisons of bacterial action. The gelatine was not usually made in the packing plant, but was bought from manufacturers who made a specialty of this business.

The Meat Inspection Division, Department of Agriculture has recently forbidden the use of ordinary commercial gelatine, and all gelatine now entering into food products must be made under government supervision in the establishment in which it is to be used.

The jelly now used is manufactured from hog's feet and skin. These are placed in large kettles and boiled until the material has jellied. It is then poured into shapes or pails in which it is stored until a batch of jellied meats is being prepared. No special precaution is taken to avoid contamination.

In putting up jellied products, the meat is packed by hand into oblong tin shapes, and then the melted gelatine is poured in until the container is nearly full. When the gelatine has solidified, a thin board is placed on the surface, and this is the only protection provided against contamination.

Sources of Meat-Poisoning.—From the standpoint of meat poisoning, these products are more dangerous than either fresh meat or canned food. The danger of fresh meat is fairly well controlled by inspection and cooking, and the processing of canned goods is a good safeguard. Jellied meats, however, are open to contamination during their preparation and handling until they reach the consumer, and are not cooked again before eating.

Meat poisoning may be the result of one or more of the following conditions: (1) We have the organisms of such animal diseases as Hæmorrhagic Septicæmia, Blackleg, Malignant Oedema, Gas Gangrene, Anthrax, and suppurative and septic conditions that produce changes in the living tissue in which they are growing that render the flesh dangerous for human beings. (2) Meat may become contaminated with organisms of intestinal origin such as *B. enteriditic*, *B. paratyphosus*, and the so-called Hog Cholera Bacillus, which produce heat-resistant poisons; and if the contaminated flesh is not thoroughly cooked the consumer may not only become poisoned but also infected. (3) The flesh from healthy animals may become contaminated during the course of its preparation with organisms that are capable of bringing about alteration in the tissue which render it toxic. Among the organisms incriminated are *B. proteus vulgaris*, *B. subtilis*, and *B. coli*. Meat may also become con-

taminated with *B. botulinus* which causes a true intoxication by the production of toxin outside the body.

If it be true that *B. enteriditis*, *B. typhosus*, *B. botulius*, etc., are frequently present in the intestines of many animals, it may be reasonably assumed that some of them are ubiquitous in places when animals are slaughtered and prepared for food. The protein-splitting organism of the third group are certainly nearly always present. In view of this it is difficult to understand why meat poisoning as the result of ingestion of cold meat products is not of greater frequency.

Present Investigation.—The present work was mainly directed to determine the extent of contamination and the chief sources of contamination. Although particular attention was given to the bacterial content of containers, gelatine, at the time of packing, we were always on the lookout for the common food-poisoning organisms.

Bacterial Content of Containers.—The tin in which jellied meats are sold are not sterilized before filling. In some establishments new containers are used for each batch, but in other plants they are returned by the retailer for refilling.

When these tins were ready for use, the bacterial content was estimated by rinsing them with sterile water, and plating a cubic centimetre of this wash water on nutrient agar and gelatine. Most of the containers were of course found to be heavily laden with bacteria and molds. In order to show the necessity for sterilization, the tins were then steamed, and the decrease in bacterial content determined. This was done merely to show the packer one source of contamination and the means of controlling it. No attempt was made to identify all the organisms present, but in a few of the cans returned for refilling *B. coli* were present, indicating, though the possibility of contamination from sources could not be excluded, that the containers might have been used for purposes other than those for which they were intended.

It is difficult to interpret the importance of the presence of *B. Coli* in meat products because of their wide distribution in abattoirs; but it seems reasonable to suggest that their presence in some instances at least might be taken as an indication of the presence of members of the more harmful paratyphoid enteriditis group.

Bacterial Content of Gelatine.—Many quantitative bacterial tests have shown that the gelatine is frequently heavily contaminated. A bacterial content as high as 12,000 per c.c. was found in some samples when the jelly was being poured into the containers. It is clear that the gelatine is not always heated to a temperature sufficiently high to kill the organism when it is being melted for pouring. This is probably the principal source of contamination of jellied meats; and the temperature at which they are held (40 F.) is not low enough to retard the growth of many of the organisms planted with the contaminated gelatine.

We did not attempt to determine the nature of the organisms present in each sample; for it is obvious that almost any organism may find its way into gelatine in the course of its preparation and storage. In the observations made *B. Proteus*, *B. subtilis*, and in a few cases, *B. coli*, were present.

Some authorities claim that gelatine is not of sufficient chemical complexity for the production of high order cleavage products, *i.e.*, although suitable bacteria may be present in the gelatine, poisonous products (ptomains, etc.) can not be formed in the material in the natural process of protein disintegration. However, one can not question the fact that gelatine is a fair medium for the growth of numerous micro-organisms; and if gelatine containing suitable bacteria is incorporated into meat products the medium is so enriched that these dangerous poisonous cleavage products can now be made. Therefore so far as jellied meats are concerned it is negligible whether the gelatine itself is of sufficient complexity for the formation of high order cleavage products.

Examination of Spoiled Jellied Meats.—In all the specimens of spoiled jellied meats examined, liquefaction of the gelatine and decomposition of the meat began at the outside, indicating that aerobic organisms are the chief cause of spoilage. In nearly all cases the interior of the product was found to be perfectly fresh, even when the outside portion to a depth of one or two inches was completely decomposed, and gave off a putrid odour. This is important, since an unscrupulous dealer could very easily trim off the spoiled part and sell the unaltered central portion as fresh food. Such trimmed portions might be very dangerous, since they might readily be soiled with the products of putrefaction or contaminated by injurious putrefactive organisms.

Aerobic and anerobic cultures were made from about a dozen specimens submitted for examination, but in no case were we able to demonstrate the presence of any member of the paratyphoid-enteriditis group. The organisms identified in most cases were *B. subtilis*, *B. proteus* and the *B. mesentericus*. In several anerobic cultures the *B. welchii* was found. A number of other spore bearing saphrophytes were isolated but these have not yet been classified. This work is being continued with the view of classifying the organism most frequently found; but it is of course understood that the flora will not be constant in any two samples, for many varieties of organisms may be introduced in the course of preparation and handling.

B. proteus vulgaris has been associated with food-poisoning by a number of European investigators; but its causal relationship has not yet been definitely established. Nor is it clear to which factor the symptoms are attributable; some claim that they are due to the multiplication of the organisms in the body, while others hold that they are due to the production of a toxin.

The results obtained from our limited number of examinations would indicate that *B. proteus vulgaris* is often present in gelatine and therefore in the finished jellied meat product; and if this organism is capable of producing infection or intoxication, it is difficult to understand why cases of food poisoning are not of more frequent occurrence as the result of the ingestion of cold meats contaminated with it. The same applies with equal force to *B. coli* and *B. subtilis* which are said to produce poisonous cleavage products, though, as Rosenau points out, the reason that poisoning does not always follow their presence in contaminated meat may be due to the fact that the poisonous products of decomposition are present only at certain stages of the breaking up process.

The Sterilization of Gelatine and Jellied Meat Products.—From the standpoint of meat packers, the most important phase of the problem is to find some means of reducing the wastage. When it was suggested to them that the finished product might be sterilized in the final container and then protected against subsequent contamination, it was stated that a temperature sufficiently high to kill bacteria and spores would seriously affect the solidifying properties of the gelatine. The quality of gelatine for packing-house use is largely measured by the degree of firmness on setting. Some experiments were conducted to decide this point, and it was found that a jelly of good consistency could be held in an autoclave at a temperature of 240 F. for as long as thirty-five minutes without in any way affecting the product, but a poor flabby jelly did not set well after being heated much above the boiling point.

Upon the basis of the information obtained from these experiments, it was decided to put up some experimental packs with the view of finding out whether sterilization with steam would injure the finished product.

Experimental Pack No. 1.—This set was put up to see whether spoilage could be prevented by careful packing. Just before packing the tins, the meat was boiled, the gelatine sterilized in flasks, and the container steamed for five minutes. As soon as the jelly had set the surface was covered with a thin layer of paraffin wax to prevent air contamination.

Experimental Pack No. 2.—The tins in this set were prepared by the usual packing-house method, and were brought to the laboratory and subjected to fifteen pounds steam pressure for fifteen minutes, *i.e.*, sterilized in the final containers. The surface of the jelly was also protected with a layer of wax.

Experimental Pack No. 3.—In this series the tins were prepared by the packer according to the usual practice, and they were neither sterilized nor protected by wax. This set was put up as a control.

All the tins of each series were held under conditions similar to those found in the average packing-house.

Result of Experiment. — All the tins prepared by the usual packing-house method showed signs of decomposition in ten days. At the end of this period some of series No. 1 and No. 2 were uncovered and were found to be perfectly fresh. In sixty days the remainder of the tins were examined and some of those put up by the first method were found to be slightly mouldy, while all those sterilized in the final containers were just as fresh and as palatable as they were at the time of packing. At the end of the experiment the cans of meat were examined by men engaged in the preparation of jellied products, and were pronounced by them to be satisfactory in every respect.

The results of these experiments were brought to the attention of the management of one of the large establishments and an attempt is soon to be made to repeat the work on a larger scale in the plant.

SUMMARY.

1. Contaminated jellied tongue was probably the cause of an outbreak of meat-poisoning in Toronto in 1917.
2. The containers in which the product is sold are not sterilized before use, the gelatine is frequently contaminated at time of packing, and the product is not sufficiently protected to prevent subsequent contamination. These are all factors in the wastage due to decomposition.
3. *B. botulinus*, *B. enteriditis*, or the Hog Cholera Bacillus have not yet been demonstrated in gelatine or spoiled jellied products; the chief organisms present are *B. proteus vulgaris*, *B. subtilis*, *B. mesentericus*, and *B. coli*.
4. The sterilization of gelatine does not affect its solidifying properties, provided it is of good quality.
5. Jellied meat products may be sterilized in the final containers, and kept without deterioration for at least sixty days. Jellied meats put up by the ordinary commercial method show signs of decomposition in ten days when kept under usual conditions.

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The Provincial Board of Health of Ontario

Cases and Deaths from Communicable Diseases reported by Local Boards of Health for the Month of July, 1919.

THE reports of local Boards of Health for the month of July show a slight increase in smallpox cases over the same month of 1918, but a decrease of 16 cases compared with June last when 68 cases and 2 deaths were reported. The deaths from diphtheria are 9 more while the cases reported are 9 less, which would indicate the disease to be of a more virulent type, or that the cases have not all been reported. It is satisfactory to know that the reports show a marked decrease in measles, whooping cough and typhoid fever, as may be seen in the comparative table.

Infantile paralysis show a slight increase over the corresponding month of 1918. The places reporting are: Toronto 3 cases, Hamilton 1, Ottawa 1, Ameliasburg Tp. 2.

Influenza and influenzal pneumonia have almost disappeared from the Province—only 5 deaths being reported, while acute primary pneumonia caused 52 deaths during the month.

COMPARATIVE TABLE.

<i>Diseases.</i>	1919		1918	
	<i>July</i>	<i>July</i>	<i>July</i>	<i>July</i>
	<i>Cases.</i>	<i>Deaths.</i>	<i>Cases.</i>	<i>Deaths.</i>
Smallpox.....	51	1	38	0
Scarlet Fever.....	154	3	158	5
Diphtheria.....	186	19	195	10
Measles.....	83	0	748	1
Whooping Cough.....	80	8	169	12
Typhoid Fever.....	34	8	42	15
Tuberculosis.....	201	147	178	109
Infantile Paralysis.....	7	0	1	0
Cerebro-spinal Meningitis.....	11	10	15	10
Influenza.....	6	3	0	0
Acute Influenzal Pneumonia.....	0	2	0	0
Acute Primary Pneumonia.....	0	52	0	0
	813	253	1544	165

(Note.—The last three diseases were not reported in 1918.)

VENEREAL DISEASES REPORTED BY MEDICAL OFFICERS OF HEALTH.

	July 1919	June 1919
	Cases.	Cases.
Syphilis.....	83	108
Gonorrhœa.....	139	154
Chancroid.....	7	10
	229	272

(Note.—Five deaths from Syphilis.)

CASES OF SMALLPOX REPORTED FOR MONTH OF JULY, 1919.

	Cases.	Deaths.
Brantford.....	7	0
Belleville.....	8	0
Hamilton.....	1	0
Guelph.....	5	0
Sturgeon Falls.....	5	0
Tilbury E. Tp.....	13	1
Smith Tp.....	2	0
Asphodel.....	1	0
Vankleek Hill.....	2	0
Hawkesbury W. Tp.....	2	0
Puslinch Tp.....	4	0
Beverly Tp.....	2	0
	52	1

Diphtheria Antitoxin for Intravenous Use.

The Provincial Board of Health announces that it is ready to supply diluted antitoxin for intravenous use.

The antitoxin is put up in 5,000 unit syringes, and consists of antitoxin which has been diluted one half with sterile physiological salt solution. The actual dose of antitoxin in each syringe is 5,000 units.

It has been determined that antitoxin so diluted is *much less likely to cause severe reactions when given intravenously.*

The use of this antitoxin is recommended in cases of diphtheria which are not seen by the physician until the patient has been ill for several days; also in early cases which appear to be acutely toxic. Laryngeal diphtheria which has gone unrecognized for several days may be treated with benefit with this antitoxin for intravenous infection.

Laboratory Specimens.

HOW TO GET PROMPT SERVICE

The following circular letter has been issued by the Provincial Board of Health:

"Following holidays, Saturday afternoons and Sundays, the Board has occasional complaints from physicians that reports upon specimens sent to our laboratories are not sufficiently prompt. Upon investigation it is invariably found that the delay *is caused by non-delivery by the postal authorities*. In order to prevent such delays, the Board, after consultation with the postal authorities, who promise co-operation, advises that specimens (particularly such as diphtheria) upon which a prompt report is desirable, should be sent *as first-class matter with a Special Delivery stamp*. This will ensure prompt delivery and enable us to give an early report. The laboratories provide an adequate service on Sundays and holidays."

Re Patterson vs. Township of Trafalgar.

The case of Patterson versus the local board of health of the township of Trafalgar, recently tried before His Honour Judge Elliott at Milton, is of interest to medical officers of health and local boards of health.

Patterson, a farmer in the township of Trafalgar in the County of Halton, was quarantined with his family on account of one of his children contracting scarlet fever. The medical officer of health, it seems, did not see the case, the quarantine being established by the attending physician acting for the medical officer of health. The quarantine was maintained for seven weeks. It was lifted by the medical officer of health at the end of that time. The plaintiff claimed negligence on the part of the local board and damages in that he was not allowed to go about his work and that the quarantine was maintained for seven weeks. A large number of witnesses including the M.O.H., the District Officer of Health and the Chief Officer were examined and judgment has lately been given against the local board for \$75.00 and costs, the judge apparently taking the view that there was no good ground for prolonging the quarantine beyond six weeks.

News Items

Major F. B. Bowman, C.A.M.C., who has been overseas for four years, having seen service in England, France and Italy has returned home. Major Bowman was O.C. No. 1 Canadian General Laboratory, Folkestone, and later commanded a Mobile Laboratory in Italy and was subsequently engaged in influenza research work in France.

Captain E. Fidler, C.A.M.C., of the Institute of Public Health, London, Ontario, has returned after several years service overseas.

Major Arthur Ellis, O.B.E., of No. 5 (Canadian) Mobile Laboratory, B.E.F., has been visiting in Toronto. It is said that Major Ellis has been offered a position on the staff of London Hospital Medical School.

Our distinguished fellow-countryman, Sir William Osler, Bart., has recently celebrated his seventieth birthday. The PUBLIC HEALTH JOURNAL tenders its most sincere, if somewhat delayed, felicitations. A very splendid tribute to Sir William appeared in the Journal of the American Medical Association, July 12th, in which number there also appeared a splendid picture of the man who has done so much to strengthen the Anglo-American Medical Entente.

The editor of the PUBLIC HEALTH JOURNAL will be glad to hear from returned officers of the C.E.F. who have had public health training, laboratory or other, and who wish to obtain civilian public health posts. Public health administrators desirous of obtaining the service of such officers will confer a favour by also communicating with the Editor, 169 Bay Street, Toronto. It is hoped that in this way the Journal may serve as a clearing-house, and as the official organ of the Canadian Public Health Association render a further service, in its own field in Canada. This service will be entirely gratuitous and is in no way analogous to the service rendered by other journals throughout the medium of their advertising columns.

Dr. H. C. Cruikshank has recently been added to the staff of the Research Division of the Connaught Antitoxin Laboratories, University of Toronto.

A very successful meeting of the Nova Scotia Health Officers' Association was held in Kentville early in July. Dr. Clarence Miller, Stellarton, N.S., is President of the Association.

Captain R. H. Murray, Engineer to the Bureau of Public Health, Government of Saskatchewan, has returned to Regina after an absence of four years with the overseas military forces. Captain Murray was gazetted with the Canadian Forces early in 1915. At the request of the Imperial authorities he was transferred to the 2nd London Sanitary Company for special duty.

He served for two years as Sanitary Officer with the Egyptian Expeditionary Force, proceeding later to France as Sanitary Officer to the 52nd Division. Captain Murray subsequently commanded the 1st and 2nd London Sanitary Companies. Following the armistice he was appointed Technical Adviser to the War Office on Water Supply, Sewage Disposal, Incineration and other engineering questions affecting the health of the troops.

Editorial

Diphtheria Deaths

IN the list of deaths from communicable diseases reported by Local Boards of Health in the Province of Ontario for June 1919, there were 25 deaths from diphtheria. There were 273 cases of diphtheria reported, so that the deathrate was just over 9%.

What is the explanation of this death-rate in a disease for which we have a specific curative agent? Only three explanations are possible: carelessness, indifference or ignorance! These sins of omission have been committed by someone and the net result is twenty-five preventable deaths in one province in Canada in one month!

Until parents and others will insist upon having a physician see their children when they have suspicious sore throats and until physicians give *antitoxin at once*, in all suspected cases of diphtheria, not waiting for laboratory confirmation of the diagnosis, this needless loss of life will continue. Parents! Look at your own child's throat; if you cannot get a physician; and if it is sore have a physician at once. Do not decide for yourself if it is humanly possible to obtain a doctor; but do look yourself and *take* your child to a physician, if necessary, rather than let the child lose its life from a preventable disease!

Diphtheria deaths are preventable! Do not let them occur in your town or in your family.

